

Re: Yes, Paul?Re: Equivalence my ass! Re: Well, Hobba? Re: A. Newtonian Invariance vs SR-cult fraud and corruption (Rev B)

Source: <http://sci.tech-archive.net/Archive/sci.physics/2004-10/6898.html>

From: Bill Hobba (bhobba_at_rubbish.net.au)

Date: 10/24/04

Date: Sun, 24 Oct 2004 22:57:30 GMT

"Bill Hobba" <bhobba@rubbish.net.au> wrote in message
news:o9Hed.37174\$5O5.17791@news-server.bigpond.net.au...

>

> "Mike" <eleatis@yahoo.gr> wrote in message

> news:9c1b39be.0410231519.7062b3e0@posting.google.com...

> > "Bill Hobba" <bhobba@rubbish.net.au> wrote in message

> news:<[dnhed.35776\\$5O5.2466@news-server.bigpond.net.au](mailto:dnhed.35776$5O5.2466@news-server.bigpond.net.au)>...

> > > "eleaticus" <eleaticus@bellsouth.net> wrote in message

> > > news:aBfed.43875\$pi7.23026@bignews4.bellsouth.net...

> > > >

> > > > "Paul Draper" <pdraper@yahoo.com> wrote in message

> > > > news:74768d2d.0410221336.6341411@posting.google.com...

> > > > > daryl@atc-nycorp.com (Daryl McCullough) wrote in message

> > > > > news:<clap4r01dmn@drn.newsguy.com>...

> > > > >

> > > > > > So the conclusion of your demonstration is observably false.

> > > > >

> > > > > There's another demonstration that shows this beautifully. You and

a

> > > > > buddy go to the playground with a basketball and get on one of

those

> > > > > rotatable turntables that the kids spin on until they get

nauseous.

> > > > > Once you've gotten up to speed, you and your buddy stand at

opposite

> > > > > points on the perimeter of the turntable and toss the ball to each

> > > > > other. The path of a thrown ball in this rotating frame is

something

> > > > > that has to be seen to be believed! With practice, you can throw

the

> > > > > ball directly across the turntable and catch it yourself!

> > > >

> > > > I told y'all how to do it, how to show that the relative velocity

wrt

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> to
> > > *an*
> > > *accelerating system has nothing to do with the question of whether*
the
> > > *inertial object actually travels a straight line as defined by the*
> > > *continual*
> > > *comparison of 'milestone' coordinates: $B'-A' = C'-B'$.*
> > >
> > > *Get real. When the turntable is not rotating push the ball and*
> *(neglecting*
> > > *air resistance and gravity) it travels in a straight line relative to*
> *you*
> > > *and a Cartesian coordinate system say painted on the turntable and a*
> *pole*
> > > *where you are standing – experimental fact. Spin the turntable and*
> *relative*
> > > *to exactly the same coordinate system the ball no longer travels at*
> *constant*
> > > *velocity in a straight line – again experimental fact. Thus how the*
> *ball*
> > > *behaves when it is thrown are different. The whole issue boils down*
to
> *what*
> > > *one counts as a law of physics – it is obvious that free particles no*
> *longer*
> > > *travel at constant velocity (but see my other comments below) so if*
you
> > > *count that as a law of physics (and most would – it is Newton's first*
> *law of*
> > > *motion) then the laws of physics are different. However what Einstein*
> *says*
> > > *with the principle of general invariance is that is not how we should*
> > > *express laws of nature – we should write them in covariant form so*
they
> *are*
> > > *the same in any coordinate system. Thus you either say – Newton's*
first
> *law*
> > > *of motion is not a valid law because it is not expressed conveniently*
or
> *you*
> > > *say that the laws motion are different in accelerated frames. Take*
your
> > > *pick – each is ok by me – although I generally opt for the second one.*
> > >
> > > *But care is also required – Newton's first law of motion is really*
> > > *circular – it says a free particle moves at constant velocity unless*
> *acted*
> > > *on by a force. We release the ball – we find nothing else in the*
system
> > > *acting on it (remember we are neglecting air resistance and gravity)*

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so

> > > *according to our intuitive idea of free particle it is not acted on by*

a

> > > *force so should move at constant velocity – so we conclude the frame*

is

> *not*

> > > *inertial. Or we can say – hey it is not moving at constant velocity*

so

> *is*

> > > *not free thus Newton's first law still holds. Newton's first law is*

seen to

> > > *be rather vacuous (force free means moving at constant velocity – so*

what do

> > > *we count as force free?) – it is in fact circular so it is quite*

reasonable

> > > *to say it is not a law worth saving. We would be better of basing our*

definition of inertial frame and formulation of the laws of motion on

the

> > > *principle of equivalence and the symmetries of an inertial frame –*

that

> *way*

> > > *we never run into problems. But it is a bit sad we need such an*

advanced

> > > *theory to get around these issues – which is why I generally opt for*

the

> > > *second option and say the laws of physics are not the same in*

accelerated

> > > *frames. However I am happy with either view as long as the person*

makes

> *it*

> > > *clear which view they are advocating and use it consistently. In fact*

if

> > > *Newton's laws were scrapped in teaching mechanics (see*

<http://www.eftaylor.com/pub/FmaAJPguest5.pdf> – ie it was all based on

the

> > > *PLA) and we define an inertial frame by its symmetry properties then*

IMHO le

> > > *ss problems would arise and we would all be better off. The laws of*

physics

> > > *would be the same in all frames right from the outset – conservation*

of

> > > *momentum, energy etc would be seen for what they are – simply a*

reflection

> > > *of the underlying symmetry of an inertial frame.*

> > >

> > > *Bill*

> > >

> >

> > *You do not know what you're talking about. Now I am convinced. So is*

your prof. Taylor. Hidding the problem does not eliminate it.

>

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> *Taylor is a well respected physicist, world renowned for his textbooks on
> relativity written with Wheeler – an acknowledged master of relativity.*

If

> *Wheeler and Taylor do not know what he is talking about no one does.*

>

>>

>> *Tell me something. How would you teach the LPA?*

>>

>

> *What is the LPA? Do you mean PLA – the principle of least action.?*

>

>> *as a 'a priori truth',*

>

> *The only 'a priori truth' is logic – and even there debate exists.*

>

>> *as an empirical proposition or as a mathematical model in a*

>> *constructivism sense.*

>

> *I would simply point out, as Taylor does, that an alternative formulation*

of

> *QM is Feynman's sum over histories approach. The little arrow that turns in*

> *this explanation cancels all paths except those where the exponent s in*

e^{iS}

> *does not vary – this s is in fact the Lagrangian.*

Dear oh dear – should be more careful. S is of course the action from which one derives the lagrangian density.

Sorry

Bill

Another method as

> *espoused in Landau – Mechanics and Classical Mechanics, Quantum Mechanics*

> *and Field Theory by Amnon Katz is to take the PLA as foundational and*

> *develop mechanics from it. QM is seen to result from what is known as*

> *saddle point integration (page 40–41 of the reference by Amnon Katz). In*

> *this formulation one can introduce the powerful Noether theorem. But this*

is

> *a problem for educators and choosing a style suitable for the kinds of*

> *students they have, their background and interests. I am simply noting*

the

> *circularity one has with Newton's first law disappears in such an*

approach.

>

>> *Is it a Platonic, Formalistic or Constructivist*

>> *approach to physics?*

>

> *This is physics not mathematics – so the answer is none of the above or*

more

> *specifically who gives a ****. I leave such to the person who writes the*

> *book. In Taylor's case his style has been described as 'pedagogically*

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- > *sound' but informal and 'pokey'. As Feynman says in his lectures there is*
- > *no standard answer to such questions – one chooses the teaching style*
- > *depending on the material – just like he choose different styles in his*
- > *famous lectures.*
- >
- >>
- >> *Do you think the PLA would make sense in lieu of Newton's Laws?*
- >>
- >
- > *Do you ever ensure brain is engaged before opening mouth or do you always*
- > *sprout off about what you obviously know nothing about? Their is a well*
- > *known mathematical theorem saying the two approaches are equivalent. The*
- > *Lagrangian approach is better because it generalizes beyond classical*
- > *mechanics, has a closer relationship to QM, and allows wielding of*
- Noethers
- > *powerful theorem.*
- >
- >> *Do you*
- >> *want to taylor physics teachings so they can be understood by the*
- >> *average moron who pays for education? Do you think such approach is*
- >> *for the benefit of society?*
- >
- > *I do not think in such terms. I think in terms of trying it out on a*
- small
- > *scale and seeing what happens – which is exactly what is occurring. What*
- we
- > *need in education is less perception on what must be done and more choice*
- > *for the student. Teaching physics by the PLA as advocated by Taylor is*
- part
- > *of such a process. If it paves successful it will expand – if not it will*
- > *go the way of the dinosaurs and students will wait for graduate school be*
- > *exposed to it.*
- >
- >>
- >> *Are you trying to set the foundations for the next round of dark ages?*
- >> *Don't you feel any shame at all?*
- >>
- >
- > *It is obvious you understand very little about physics at all.*
- >
- > *Bill*
- >
- >>
- >> *Mike*
- >
- >

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